

UNITED STATES MARINE CORPS
Logistics Operations School
Marine Corps Combat Service Support Schools
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LOC 1418

STUDENT OUTLINE

AVIATION COMBAT ELEMENT (ACE) LOGISTICS

LEARNING OBJECTIVES:

1. Terminal Learning Objective: Given an operation, commander's guidance, the requirement to provide CSS, access to automated information systems (AIS), and the references, conduct combat service support (CSS) planning, to ensure logistical support requirements are appropriately identified. (0402.08.01)

2. Enabling Learning Objectives:

a. Given the references, operational plan, commander's guidance, and a written test, identify CSS capabilities and deficiencies, per the references. (0402.08.01c)

(1) Identify the three types of logistics support provided to units of the Marine Aircraft Group (MAG).

(2) Identify the unit that provides internal aviation logistics support to the MAG.

(3) Identify the unit that provides aviation ground support and combat service support to the Marine Aircraft Wing (MAW).

b. Given the references, operational plan, commander's guidance and a written test, identify considerations when operating in other environments, per the references. (0402.08.01d)

(1) Identify ACE unique logistics requirements.

1. **AVIATION LOGISTICS**. There are three types of logistics

support provided to units of the MAG. Aviation logistics support includes aviation supply and intermediate maintenance support of aircraft, aviation support equipment, and aviation armament and ordnance equipment. Aviation ground support functions are primarily air base functions. Combat Service Support consists of ground supply and maintenance, transportation, engineering, health services and services.

2. MARINE AVIATION LOGISTICS SQUADRON (MALS)

a. Mission. Provide [internal] aviation logistics support for the subordinate units of the Marine Aircraft Group (MAG).

b. Tasks

(1) Provide intermediate level maintenance on aircraft and aeronautical equipment of all supported units and, when authorized, perform first-degree [echelon] repair on specific engines.

(2) Provide aviation supply support for aircraft of all supported units.

(3) Interpret and implement aircraft maintenance and supply policies and procedures for the MAG Commander. Conduct inspection and assistance reviews on all aspects of aviation logistics within subordinate units of the MAG.

(4) Coordinate all planning functions associated with aviation logistics and its employment, deployment, and utilization.

(5) Screen and repair aeronautical materials in need of rework, test or inspection.

(6) Maintain the capability to deploy as an integral unit or as detachments, in support of separately employed units.

(7) Conduct individual and unit training to qualify organic personnel for performance of assigned missions and tasks.

(8) Provide assembly and distribution of Class V(A) and distribution of Class V(W) to supported squadrons/units.

(9) Manufacture cryogenics products as required for supported units.

(10) Provide data processing support to facilitate execution of the aviation supply and aircraft maintenance functions of the MAG.

c. Support Packages. The required logistics elements (personnel, spares, support equipment, and mobile facilities) are formed into specific support packages within every MALS.

(1) Fly-In Support Package. Fly-in support packages (FISPs) contain OMA-level replaceable spare parts. FISPs contain enough spares to support a specific type and number of aircraft for 30 days at combat utilization rates. There are three FISPs for each type of Marine Corps aircraft. Each FISP is in the custody of a specific MALS. FISPs support the fly-in echelon aircraft of a Maritime Prepositioning Force (MPF) MAGTF. FISP material is protected stock while in garrison.

(2) Contingency Support Package. Contingency support packages (CSPs) contain personnel, spare parts, support equipment, and mobile facilities necessary to support a composite ACE. CSPs contain enough spare parts to support a specific type and number of aircraft for 90 days at combat utilization rates.

(3) Follow-On Support Package. Follow-on support packages (FOSPs) contain spare parts, aviation support equipment, and personnel. FOSPs contain logistics elements not required to begin combat operations, but necessary for continued sustainment. Every MAL's FOSP is different.

(4) Additional Support Packages. Training squadron allowance (TSA) packages and training exercise support packages (TESPs) complete the MALS' logistics support packages. TESPs can be integrated into the FOSP if necessary.

3. MARINE WING SUPPORT GROUP (MWSG). The MWSG consists of a Headquarters and Headquarters Squadron (H&HS) and four Marine Wing Support Squadrons (MWSS). The H&HS serves as administrators for the group staff. The MWSG provides aviation ground support and selected CSS to wing units via four MWSSs. Two of the four MWSSs are configured to support fixed-wing operations and two are configured to support rotary-wing operations.

4. MARINE WING SUPPORT SQUADRON (MWSS)

a. Mission. The MWSS provides all essential aviation ground support (AGS) requirements to a designated fixed/rotary/composite ACE or supplement air base facilities and services provided by a Marine Corps Air Station (MCAS), when based thereon.

b. Tasks. To conduct airfield operations, less aircraft control, for supported ACE to include:

- (1) Internal airfield communications
- (2) Weather services
- (3) Expeditionary airfield services
- (4) Crash/fire/rescue services and structural firefighting services
- (5) Aircraft and ground equipment refueling
- (6) Essential engineer services
- (7) Motor transport for operations internal to air base
- (8) Messing facilities
- (9) Routine and emergency sick call and aviation medical functions
- (10) Individual/unit training
- (11) Organic nuclear, biological and chemical defense (NBC)
- (12) Security and law enforcement services
- (13) Air base commandant functions

c. Organization. The two key sections within the MWSS are the S-3 and the S-4.

(1) S-3. The S-3 section is composed of the following divisions:

(a) Airfield Operations Division. The airfield operations division consists of a photo branch, weather services branch, Expeditionary Airfield (EAF) services branch, structural & crash fire and rescue branch, fuels branch, and the Explosive Ordnance Disposal (EOD) team.

(b) Motor Transport Operations Division. The motor transport operations division consists of light, medium, and heavy motor vehicle sections.

(c) Engineer Operations Division. The engineering operations division includes the drafting and surveying branch, heavy equipment branch, utilities branch, and construction branch.

(2) S-4. The S-4 department is composed of the following divisions:

(a) Logistics and Embarkation Section. This section of the S-4 Office is responsible for all daily internal logistical coordination within the unit. The S-4 processes logistical support requests (LSRs) for field operations, is responsible for medial and dental readiness for the squadron, and conducts and coordinates all internal and external embarkation efforts for the unit.

(b) Maintenance Management Division. The Maintenance Management Office (MMO) is responsible for all maintenance efforts in the command, to include the calibration, modifications, and publications programs, the joint oil analysis program (JOAP), and daily coordination between the maintenance and supply divisions.

(c) Food Services Division. The Food Services Division is responsible for operating a field mess, to include storage, preparation, and service.

(d) Supply/Fiscal. The Supply Division in an MWSS is responsible for all supply related matters in the squadron.

(e) Armory Branch. The armory branch is responsible for the care and maintenance of individual and crew served weapons such as the m249 SAW, M240G and MK19. The MK19 and the 50 caliber machine guns can be mounted to the five-ton truck and the hardened High Mobility Multipurpose Wheeled Vehicle (HMMWV), both MWSS assets

(f) Equipment Maintenance Department. The S-4 officer maintains cognizance over the Squadron Maintenance effort. The Maintenance Department consists of the Motor Transport Maintenance and the Engineer maintenance Divisions, and the welding branch. The MWSS is authorized first and second echelon maintenance on assigned equipment per the table of Organization (T/O).

5. AVIATION LOGISTICS/CSS CONSIDERATIONS AND REQUIREMENTS

a. General

(1) The establishment of Marine aviation ashore poses a major logistical burden upon the supporting units to include:

(a) Movement of heavy and complex equipment and combat aircraft by surface and air.

(b) Installation of dispersed facilities, often in relatively undeveloped areas, which requires an extensive engineer effort.

(c) Movement of great quantities of supplies; principally, fuel, spare parts, and aircraft munitions.

(2) When established ashore, units of the ACE are normally dispersed over a wide area, perhaps as much as several hundred square miles. Included in this area of operations can be a complex of airfields, Vertical Takeoff and Landing (VTOL) sites, helicopter operating sites, radio and radar installations, anti-aircraft missile battalions, command and control agencies and maintenance and supply facilities.

(3) Marine aviation is capable of operating air facilities, maintaining, servicing, and arming assigned aircraft, and storing and handling supplies at the airfields. Construction and repair of operating facilities and distribution of aviation fuel and ordnance from ships to air bases are beyond the capabilities of Marine aviation and require external support.

b. Aviation Logistics/ CSS Requirements

(1) Supply. Sustaining aviation units within an operating area can become complex. Different arrival times, modes, and sometimes extended separation in basing these units

requires a flexible and varied supply effort by both U.S. Navy and Marine Corps supply systems.

(a) Class I (Rations)

1. An external CSS organization will normally provide these items. Units embarked aboard amphibious shipping will be supported by the ship they are assigned.

2. Once rations are issued to wing units, the MWSS will normally store and prepare them in a field or base mess facility.

3. The MWSS will have water-making capability.

(b) Class II (General Supply)

1. Ground

a The Marine Corps property section within the MALS will provide internal resupply of class II for the operating squadrons. The MWSS has its own organic supply account to provide support for in house needs.

b The external CSS organization supporting the wing unit (CSSE or CSSD) will repair and replenish these items as required.

2. Aviation. Class II aviation items will be supplied by the MALS.

(c) Class III A/W (POL). Aviation units require both ground and aviation fuel. When embarked aboard U.S. Navy ships, this will normally be provided by the assigned ship. Aircraft flying to the objective area may require in flight refueling by tanker aircraft. Aviation consumption rates and fuel types for ground equipment are the primary governing factors in determining fuel tonnage and volume requirements. Consumption rates vary from 600 to 5,000 pounds per hour, depending upon the aircraft. Total class III(A) requirements for operation of a Marine aircraft wing may exceed 400,000 gallons per day.

1. Fuel within the objective area will be initially provided by ships in the assault echelon carrying bulk or prepackaged fuel. The assault follow-on shipping will bring in additional supplies to sustain the force until

regular tanker ships begin to arrive. This will normally be provided over the beach through the CSSE in the following order.

a. Initially prepackaged fuel in 55-gallon drums or small containers will be transported ashore in organic vehicles, landing craft, or helicopters. The bulk of this fuel will be consolidated into dumps by the landing force support party (LFSP) or helicopter support teams (HSTs).

b. It is preferable that fuel be transferred from ships to the beach, port, or barge unloading points by pipeline. This is done through the Amphibious Assault Fuel System (AAFS). A single AAFS has a storage capability of 600,000 gallons of fuel and includes the transfer pumps, hoses, and collapsible tanks to transfer fuel a distance of 3 miles.

c. Tactical Airfield Fuel Dispensing System (TAFDS). The TAFDS is the aviation bulk fuel system connected to the AAFS. It provides a tactical capability to store fuel for aircraft in the vicinity of runways and other wing operating sites. The TAFDS is used in support of sustained air operations ashore. Under favorable conditions, three TAFDSs can be installed in 36 to 48 hours.

d. Helicopter Expedient Refueling System (HERS). The HERS allows aviation units to transport fuel in 500-gallon rubber bladders. It is used primarily in helicopter landing zones to provide an emergency refueling capability to extend an aircraft's range or time on station.

e. Rapid Ground Refueling (RGR). RGR includes the use of a KC-130 refueler to provide rapid refueling to other aircraft or ground assets.

f. Robertson System. The Robertson system is a rigid fuel bladder that bolts into a CH-53 and can provide external refueling or be connected to the internal fuel system of the CH-53 host.

g. M970 Refueler. The M970 refueler is a 5,000 gallon mobile refueling vehicle. The M970 mission has been expanded from mobile storage to mobile hot and cold refueling. Although the M970 is equipped with all necessary pumps, hoses, nozzles, and a filter separator, this asset's refueling mission is terrain dependent (roadways).

h. Sixcons. The sixcon system consists of five 900 gallon fuel containers and one pump module mounted on a logistics vehicle system (LVS). This system is also capable of hot and cold refueling and is also terrain dependent. The advantage to the sixcon unit is that there is no assembly required for the pump module. Note: For safety reasons only three sixcons and the pump module on top will normally be employed.

(d) Class IV (Construction)

1. This class of supply will be drawn from the supporting CSSE or CSSD.

2. The primary manager and user will be the MWSS.

(e) Class V(A/W) (Ordnance). Ammunition for both aviation and ground elements of the wing is managed by the wing/group ordnance officer who is under the cognizance of the G-/S-4. Class V(W) is provided to wing units by the CSSE and then stored and issued by the munitions section of the MALS. The initial supply of class V(A) ammunition is loaded with each CSSE in support of the aviation group/wing and stored at Ammunition Supply Points (ASPs).

(f) Class VI (Personal Demand Items). These items will be provided by the CSSE or CSSD.

(g) Class VII (Major End Items)

1. The U.S. Navy provides replacement aircraft and all associated support equipment (e.g., test equipment, Ground Support Equipment (GSE), and Expeditionary Airfields (EAF). Funding is with Navy funds or "blue dollars".

2. The U.S. Marine Corps provides resupply of all ground items (e.g., trucks, radars, engineer equipment, air control equipment). Funds for these items are Marine Corps or "green dollars".

(h) Class VIII (Medical). Medical services and supplies will be provided by the CSSE or CSSD (e.g., medical logistics company, supply battalion, medical battalion or dental battalion, FUSS).

(i) Class IX (Repair Parts)

1. Ground. External resupply of ground related (green side) repair parts will be the responsibility of the CSSE or CSSD.

2. Air. Since all repair parts for aircraft and their related support systems are provided by the U.S. Navy, the MALS or MALS det will be responsible for requesting, managing, and issuing these items.

(2) Maintenance. Wing units require maintenance assets and personnel for both ground equipment and aviation equipment.

(a) Ground. Each unit within the wing will normally be capable of equipment operator maintenance (first echelon) and many will be capable of organizational (second echelon) level maintenance. The table of organization for each unit will detail the appropriate levels of maintenance that are authorized. Intermediate (third and fourth echelon) maintenance for ground related items will be provided by the assigned CSSE or CSSD. Certain communication and electronic equipment may be repaired by the Marine wing communications squadron, Marine air control group.

(b) Air. There are three levels of aircraft maintenance within the MAW. They are organizational, intermediate, and depot. The flying squadrons are capable of organizational maintenance. Intermediate level maintenance will be the responsibility of the MALS det.

(3) Transportation. There are two modes of transportation organic to the MAW, air and ground.

(a) Ground. The MAW has one internal source of tactical ground transportation. This unit is the MWSS of the MWSG. The FSSG Motor Transport Battalion is the MAW's external source of motor transport support.

(b) Air. Internally, the MAW has both cargo and personnel carrying capabilities using the KC-130, C-9, T-39, UH-1N, CH-46, and CH-53. The C-9 and T-39 are limited assets and not normally planned for use to deploy Marine units. Externally the MAW relies on the Air Mobility Command (AMC) to provide necessary deployment airlift.

(4) General Engineering. The MWSS will provide engineer support for emplacement of small aircraft pad, EAF runways, runway repair, and vertical construction. For more

in-depth projects, external support will be required from the CSSE and/or Amphibious Construction Battalion of Naval Beach Group.

(5) Health Services. The flying squadrons/ACE will rate a flight surgeon and limited corpsmen. For more in-depth health services support, the ACE will rely on the CSSE.

REFERENCES:

1. FMFM 5-1, Marine Aviation
2. NAVAIR Notice C5200 (MALSP PPD)